

Ser. No. 10/694,504

### Remarks

Claims 1-8 were pending in the application. Claims 1-8 were rejected. No claims were merely objected to and no claims were allowed. By the foregoing amendment, no claims are canceled, claim 4 is amended, and no claims are added. No new matter is presented.

### Claim Rejections

Claims 1-6 and 8 were rejected as being anticipated by or, in the alternative, unpatentable over Almen (US Patent No. 6,379,799). Applicants respectfully traverse the rejection.

Almen discloses various prepreg composite systems. See, e.g., col. 7, line 58 onward. These materials are used "as structural components..." Col. 1, lines 19-20.

Col. 5, lines 58-62 were cited for the claim 3 and 4 uses. However, the use of "unidirectional tapes or woven or non-woven fabric prepreps" is not used in a filament-wound pressure vessel. As is discussed relative to Kamae et al. below, "filament-wound" has been added to claim 1. Furthermore, the reference to "manufacture of advanced composite structures for spacecraft" does not disclose or suggest use in the combustion chamber or propellant or oxidizer tank of a space vehicle or missile. Greatly different considerations are involved in structural components (e.g., airframes, and the like) on the one hand and filament-wound pressure vessels on the other. Materials that may be used in one are known to not be necessarily useful in the other. Properties that might be optimized for one are undesirable for the other. Thus, there would be no suggestion for the use of the Almen material in the uses of claims 3 and 4. Col. 4 of Almen does list use in "any composite structure..." but this long list is contradicted by the specific teachings of use in prepreg./resin transfer molding (RTM). Claim 4 has been amended for form, to make clear that the identified chambers or tanks are not referenced as alternatives to space vehicles or missiles but, rather, as elements thereon. Further, and as discussed below, there is no suggestion to use or seek the compositions and properties identified in the other claims.

Regarding claim 1, the Office action asserted at the penultimate paragraph of page 3 that the Almen "matrix has a glass transition temperature of at least 250°F dry (Abstract; Examples); and the resin has a pre-hardening mixed viscosity of 500-1500 cP at 75°F (column 9, lines 9-20; Examples)..." However, the cited column 9 passage of Almen refers to a viscosity "at the injection temperature" (line 12). The injection temperature is much higher than room

Ser. No. 10/694,504

temperature. For example, col. 9, line 46, onward, identifies the resin mixture as being semisolid at room temperature. Although an apparent typographical error leaves the temperature scale out of Table 1, Almen's remaining tables clearly identify the 75° as being in Celsius, not Fahrenheit.

At the final paragraph of page 3, the Office action admitted that Almen did not disclose the identified interlaminar shear strength of claims 1 and 6 and fiber tensile strength of claim 6. The Office action then asserted that "if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present..." Applicants note that this might be the situation if the prior art disclosed an identical composition and manufacturing process to a single exemplary embodiment of an application at issue. However, the present assertion is, at most, to overlapping claim ranges. Furthermore, in the present claims, the claimed strengths serve to further limit possible ranges of strengths and thus, themselves, act as constraints on the composition and manufacturing parameters. Thus, even if there were overlapping claimed compositional ranges, there is no suggestion that the prior art composition have the claimed strengths.

Regarding claim 2, Almen discloses use of high modulus fiber, not the claimed intermediate modulus. Col. 8, lines 49-50. There is further no suggestion for the claimed fiber tensile strength.

Regarding claim 5, there is no suggestion for the claimed temperature range. Although no direct comparison is available, exemplary cure temperatures are identified as over 100°C, not 100-150°F.

Regarding claim 8, col. 6, lines 17-31 was cited. This passage does identify a catalyst. However, there is no suggestion for the particular claimed cure catalyst.

Claims 1-8 were rejected as being anticipated by or, in the alternative, unpatentable over Kamae et al. (US Patent No. 6,410,127). Applicants respectfully traverse the rejection.

Kamae et al. appears to involve resins used in resin transfer molding (RTM). Col. 14, line 47 and col. 1, line 40-col. 2, line 20. This is expressly distinguished from filament winding. Col. 1, line 32. Regarding claims 3, and 4, principal uses are as structural components although there is an off-hand mention of a "pressure vessel" among a long list of goods. Col. 25, lines 1-5. Accordingly, claim 1 has been amended to identify a filament-wound structure as already

Ser. No. 10/694,504

identified in claim 6. Regarding claim 4, the cited column 24 passage clearly identifies "a structural component" in association with the craft. This does not suggest use as a combustion chamber or propellant or oxidizer tank.

Regarding claims 2 and 7, col. 13, lines 40-48 was cited for the fiber. This passage, however is silent as to the modulus and fiber tensile strength.

Regarding claim 6, in addition to not disclosing a filament-wound pressure vessel, there is no disclosure of fiber tensile strength of the composite.

Regarding claim 8, col. 13, lines 11-23 was cited. However, there is no disclosure of the claimed cure catalyst.

Accordingly, Applicants submit that claims 1-8 are in condition for allowance. Please charge any fees or deficiency or credit any overpayment to our Deposit Account of record.

Respectfully submitted,

By 

William B. Slate

Attorney for Applicants

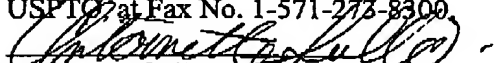
Reg. No.: 37,238

Telephone: 203-777-6628

Telefax: 203-865-0297

Date: October 27, 2005

I hereby certify that this correspondence is being faxed this 27<sup>th</sup> day of October, 2005 to the USPTO at Fax No. 1-571-273-8300.

  
Antoinette Sullo